

whereby said one connecting link operates horizontally to said crank shaft and said one upper link and said one middle link are effective to transfer said driving displacement to said slide and drive said slide in said cycle at a low speed adjacent said bottom dead center for increased force and a fast speed distal said bottom dead center for a speedier return.

IN THE CLAIMS:

Please amend the claims pursuant to 37 C.F.R. § 1.121 as follows (see the accompanying "marked up" version pursuant to § 1.121):

Please delete claims 1, 2, 5, 6, 7, 8, 10, 12 and 16 and replace with amended claims 1, 2, 5, 6, 7, 8, 10, 12 and 16.

Sub 33

- 13*
1. (Amended) A slide drive device for a press machine, comprising:
- a slide;
 - said slide including a top and a bottom dead center position;
 - an adjusting means for permitting adjustment of a stroke of said slide;
 - said adjusting means simultaneously adjusting said top and bottom dead center positions by a same amount;
 - said adjusting means being located at a single point on said press machine;
 - a crankshaft; and

first and second connecting rods on said crankshaft.

2. (Amended) A slide drive device, according to claim 1, further comprising:

a driving means for driving of said slide drive device;

at least a first upper link;

said first upper link being connected to drive said slide in a cycle;

said driving means transmitting a driving displacement to said first upper link to drive said slide in said cycle; and

said means for driving transmitting said adjustment to said slide whereby said stroke is adjusted.

Sub (B)
5. (Amended) A slide drive device, according to claim 4, further comprising:

A
said connecting rod receiving a reciprocating motion and transmitting said reciprocating motion to said means for driving;

said connecting rod and said means for driving being effective to transmit said reciprocating motion to said dynamically balancing means; and

said guiding means being effective to convert said reciprocating motion to a guiding displacement, whereby said slide operates in said cycle.

6. (Amended) A slide drive device, according to claim 5, further comprising:

said at least first upper link having a first length (a);

at least a first middle link;

a center fulcrum pin on said first middle link;

said first upper link operably connecting to said first middle link at said center fulcrum pin;

a first and second end on said first middle link;

said first connecting rod operably coupled to said second end;

said first middle link comprising a second length (b) measured between said first end and said center fulcrum pin, and a third length (c) measured between said second end and said center fulcrum pin; and

said first, second, and third lengths having the following relationship:

$$(a):(b) = (b):(c)$$

(V)

whereby said first connecting rod transmits said driving displacement to said first upper link and said first middle link and driving means reduces a slide speed adjacent said bottom dead center position and increases said slide speed distal said bottom dead center position.

Sub 35
comprising:

7. (Amended) A slide drive device for a press machine having a slide,

a slide;

said slide having a top and a bottom dead center position;

an adjusting means for adjusting a stroke of said slide;

said adjusting means simultaneously adjusting said top and bottom dead center positions by a same amount;

Q4 said adjusting means being located at the same location on said press machine;

a driving means for permitting driving of said slide drive device;

at least a first upper link;

said first upper link being connected to drive said slide in a cycle;

said driving means transmitting a driving displacement to said slide to drive said slide in said cycle;

said means for driving transmitting said adjustment to said slide whereby said stroke is adjusted;

a crankshaft; and

first and second connecting rods on said crankshaft.

8. (Amended) A slide drive device, according to claim 7, further

comprising:

a guiding means for guiding of said slide drive device;
at least a first horizontal link;
first and second linear guides;
first and second sliders;
said second slider operably slidable in said second linear guide;
said one horizontal link operably joined to said second slider;
said second slider receiving said driving displacement from said driving means;
said guiding means being effective to guide said adjustment to said slide; and
said first horizontal link driving said slide in said cycle whereby said stroke is
adjusted and said top and bottom dead center positions are adjusted by the same amount.

10. (Amended) A slide drive device, according to claim 9, further
comprising:

as
a center of said crankshaft vertically aligned with said second slider;
at least one of a first and second eccentric part on said crankshaft;
said first and second eccentric parts diametrically opposed on said crankshaft;
said first and second eccentric parts balanced about a rotation center of said
crankshaft;
said at least one connecting rod on said one eccentric part;
said connecting rod receiving a reciprocating motion and transmitting said
reciprocating motion to said driving means;

said driving means being effective to transmit said reciprocating motion to said dynamically balancing means; and

a guiding means being effective to convert said reciprocating motion to a guiding displacement, whereby said slide operates in said cycle.

12. (Amended) A slide drive device, according to claim 11, further comprising:

at least a first upper link;

said first upper link operable about a fixed fulcrum pin;

said at least one upper link having a first length (a);

at least a first middle link;

a center fulcrum pin on said first middle link;

a⁶ said first upper link pivotably joined to said one middle link at said center fulcrum pin;

a first and second end on said one middle link;

said one connecting rod operably coupled to said second end;

said one middle link comprising a second length (b) measured between said first end and said center fulcrum pin, and a third length (c) measured between said second end and said center fulcrum pin; and

said first, second, and third lengths having the following relationship:

(a):(b) = (b):(c)

(VI)

whereby said one connecting rod transmits said driving displacement to said first upper link and said first middle link and said driving means drives said slide in said cycle and reduces a slide speed adjacent said bottom dead center position and increases said slide speed distal said bottom dead center position.

16. (Amended) A slide drive device, for a press machine having a slide, comprising:

a crankshaft;

a first eccentric part on said crankshaft;

a second eccentric part on said crankshaft;

said first and second eccentric parts operably opposing each other about a rotation center of said crankshaft;

a first and second connecting rod;

said connecting rods operably joined to said eccentric parts;

said connecting rods receiving a driving displacement from said crankshaft;

a first and second upper link;

said upper links operable about a fixed fulcrum pin;

a first and second middle link;

said middle links having first and second ends;

said connecting rods effective to transfer said driving displacement to said middle links at said second ends;

said upper links operably joined to said middle link at a center fulcrum point between said first and second ends;

said middle links effective to transfer said driving displacement to said upper links;

said middle links and said upper links operably effective to transfer said driving displacement to a slide and drive said slide in a cycle;

said connecting rods having a length (a);

said center fulcrum point located a length (c) from said second end;

said center fulcrum point located a length (b) from said first end; and

said lengths (a), (b), (c), having the following relationship:

(a):(b)=(b):(c) (VII)

whereby said connecting rods operate horizontally to said crankshaft and said upper links and said middle links are effective to transfer said driving displacement to said slide and drive said slide in said cycle at a low speed adjacent said bottom dead center for increased force and a fast speed distal said bottom dead center for a speedier return.